

## **Testimony on Carbon Pricing to House Natural Resources, Water and Wildlife Committee**

by Annette Smith, Executive Director, Vermonters for a Clean Environment, Jan. 26, 2017

My name is Annette Smith. I am executive director of Vermonters for a Clean Environment, a grassroots citizen organization. Thank you for inviting me to testify today on the Climate Action Commission's recommendation to conduct a Carbon Pricing Study. In my comments today, I will present four points of information: about carbon pricing, Vermont's carbon emissions, the regional electric grid, and the challenges of creating incentives for behavioral changes given the current technologies.

I was asked to co-chair the Climate Action Commission's Technical Advisory Group. However, my co-chair and I had no role to play in the Climate Action Commission, as the co-chair of the Climate Action Commission, Agency of Natural Resources Deputy Secretary Peter Walke, directed anyone who was interested in being on the Technical Advisory Group to contact him. As a result, the Technical Advisory Group is populated with people some of whose expertise is unknown to me. As co-chairs of the Technical Advisory Group, our sole role was to respond to requests from the Climate Action Commission for information, if needed. We received no requests for technical assistance from the Climate Action Commission.

Had I been asked to provide technical information about carbon pricing, I would have asked the Climate Action Commission to consider the perspective put forward in this document, titled Carbon Pricing, A Critical Perspective for Community Resistance <http://www.ienearth.org/wp-content/uploads/2017/11/Carbon-Pricing-A-Critical-Perspective-for-Community-Resistance-Online-Version.pdf> produced by the Indigenous Environmental Network and Climate Justice Alliance. Until I read this report, I would be recommending exploring Vermont participating in a regional carbon pricing program. However, this report has given me pause. The perspective presented in the report should serve as a back stop to any consideration of putting a price on carbon in Vermont, as they articulate facts that show that

- carbon pricing is a false solution to climate change that does not keep fossil fuels in the ground,
- carbon taxes do not cut pollution to the degree needed and are a greenwash
- carbon trading and offsets help corporations and governments keep extracting and burning fossil fuels
- the revenues generated can never compensate for the destruction wrought by the extraction and pollution that is the source of that revenue and
- carbon pricing schemes result in injustices, racism and colonialism that are intentional in scope.

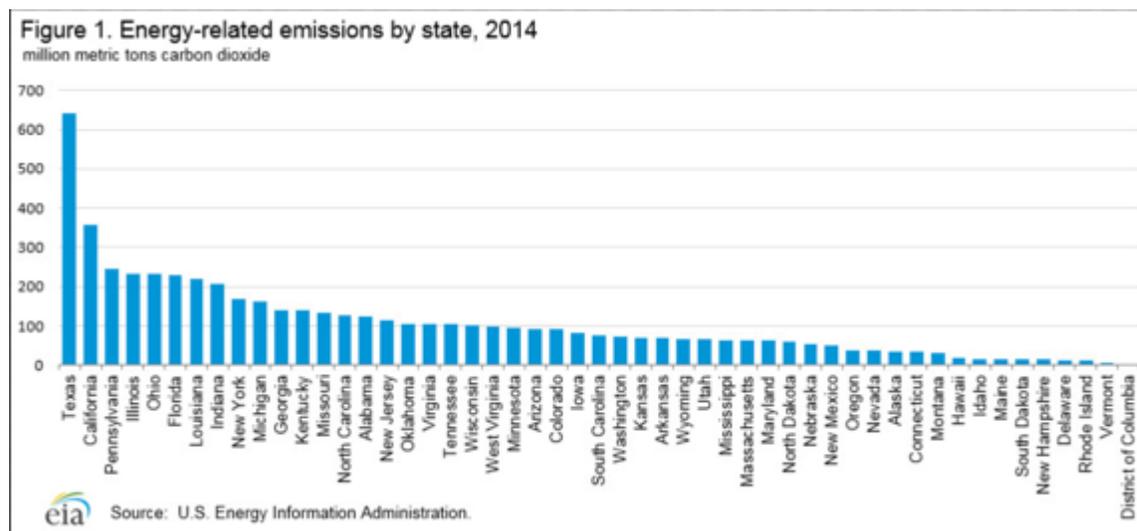
The Carbon Pricing report goes into detail to support the above points. VCE has worked with members of the Indigenous Environmental Network on water issues and we have great respect for their work. I hope this committee will read their report as you consider proposals for instituting a carbon tax in Vermont or as part of a regional initiative.

Many proponents of putting a price on carbon point to British Columbia's experience. In 2016, Food and Water Watch issued a report titled "The British Columbia Carbon Tax – A Failed Experiment in Market-Based Solutions to Climate Change". It, too, is worth reading as you consider adopting a similar policy.

[https://www.foodandwaterwatch.org/sites/default/files/rpt\\_1609\\_carbontax\\_web17011.pdf](https://www.foodandwaterwatch.org/sites/default/files/rpt_1609_carbontax_web17011.pdf)

I would like to take this opportunity to offer a few other comments on the idea of putting a price on carbon in Vermont. This is not a simple topic.

The following graph from the US Energy Information Administration shows that Vermont produces the lowest carbon dioxide emissions of any state. Per capita graphs show essentially the same thing. Vermont Forests and Parks documents estimate that the majority of these emissions are offset by our forests.



While Vermont likes to be seen as a leader, it is prudent to question whether this particular issue is one where Vermont should lead, and if the decision is yes, then the next question is, at what cost?

My personal experience helps to illuminate the challenges. I have lived off grid with solar panels, batteries, and fossil fueled generators – either propane or gasoline – for 30 years. Because I have a direct connection to my electricity production, I know the watts of all my appliances, I turn almost everything off at night, and living with renewable energy has helped me understand how renewable energy systems work.

The premise of carbon pricing is to create incentives for people to change behavior. I have done everything I can to reduce my carbon footprint and I have hit a wall, called propane. Until more efficient alternatives to propane refrigerators and kitchen stoves are developed, I have no choice. A carbon tax on fossil fuels will cost me more money and will not cause me to switch to an alternative because there are currently no good alternatives to the propane upon which my household relies. This recent article titled “Inventors search for ‘missing link’ in renewable energy” by Energy and Environment News highlights the problem that liquid fuels are an unmet need in the challenge of transitioning to renewable energy.

<https://www.eenews.net/stories/1060071143>

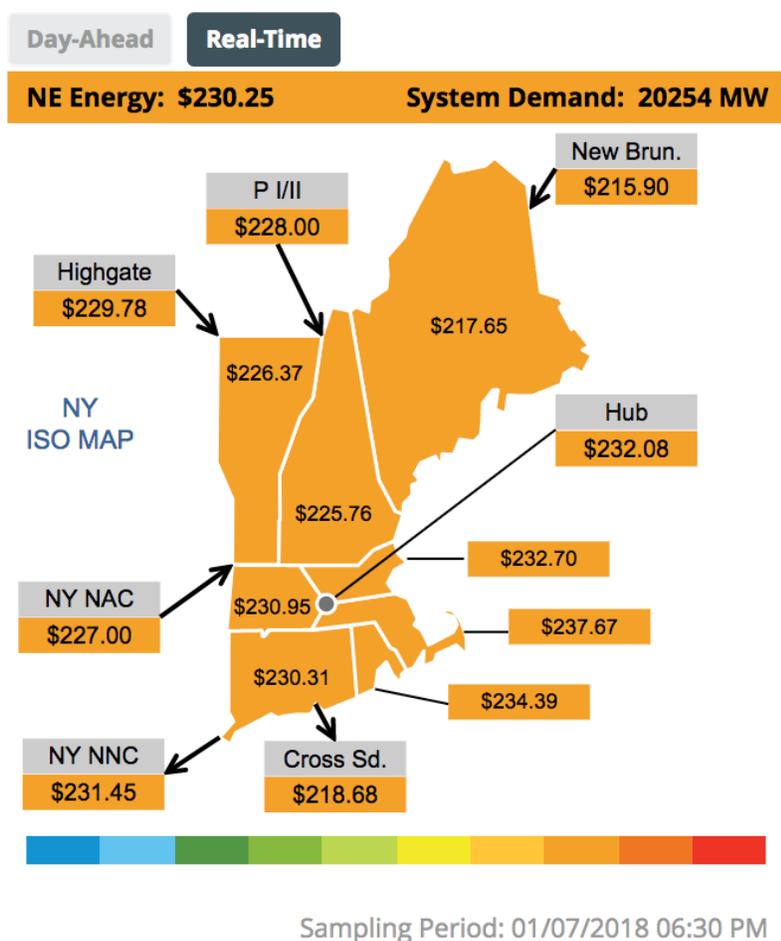
The ESSEX plan provides a good example of the complicated challenge Vermonters face in the transition to 90% renewable by 2050. It proposes to reduce the cost of electricity for Vermonters (well, not me, I’m off-grid). The idea is that people will use the savings to invest in air source

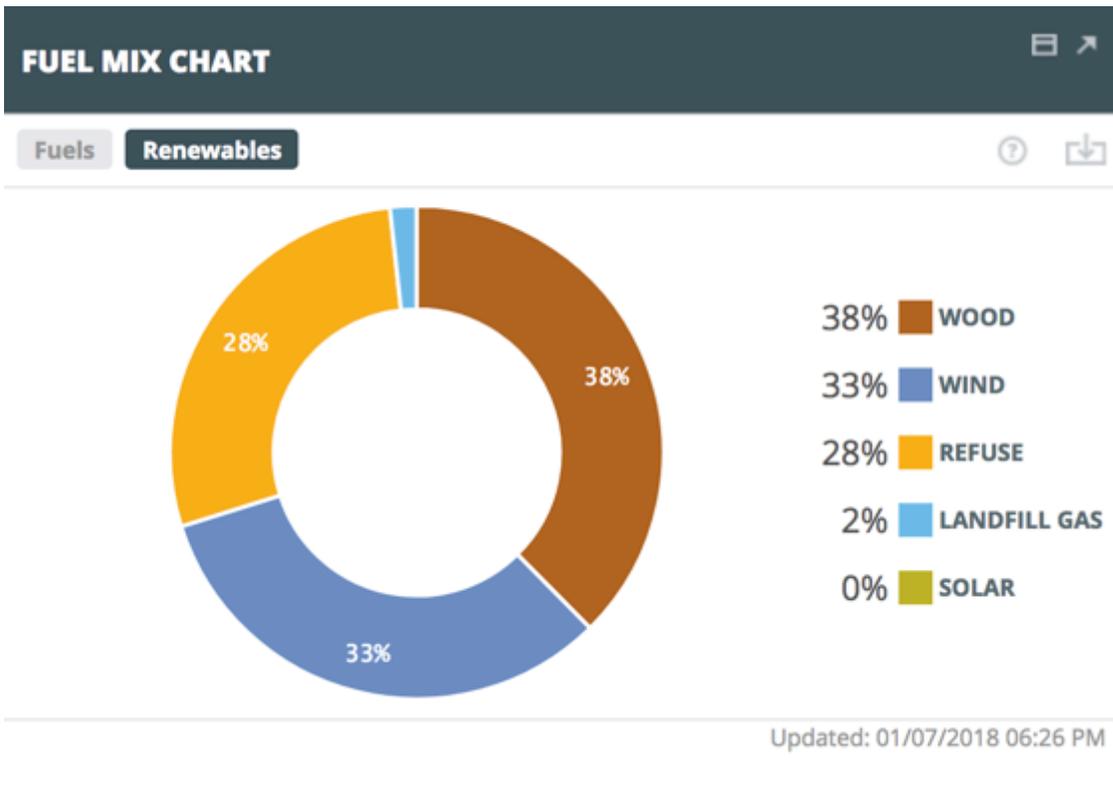
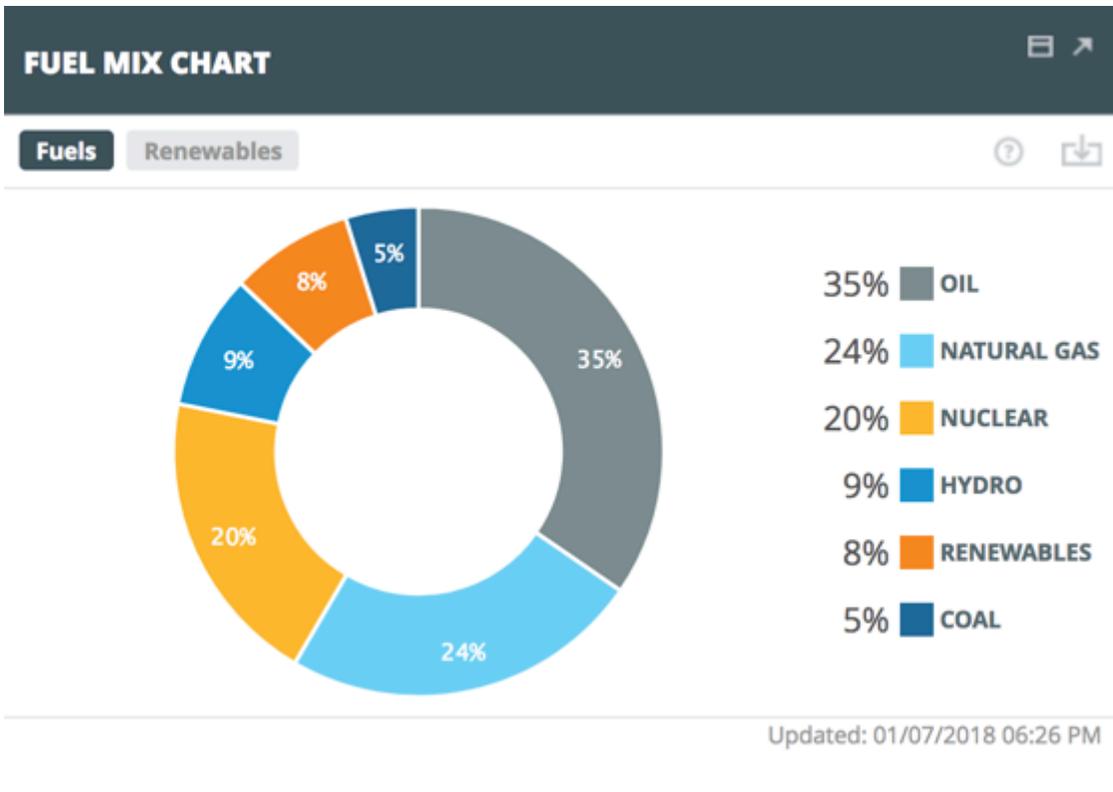
heat pumps and electric vehicles. Whether that assumption is accurate is unknown. However, the concept of instituting a policy to encourage people to change behavior is a noble one.

Several years ago I came across an academic study that I wish I had saved, and I have been unable to find it. It found that building out all the renewables possible would result in more consumption and would not cause the behavioral changes desired.

But let's assume that the assumption of the ESSEX plan is correct. Will the widespread adoption of electric air source heat pumps, for instance, result in reducing Vermont's fossil fuel consumption? Since most people are tied to the grid, we need to consider the resources in the regional grid, which assumes that in the coming decades more power will be generated by renewables. I provide two recent examples, one from the very cold period we just had and one from a more moderate day, both around 6 to 7 pm. There is no sunshine, but even if there was, most of the solar panels in New England are blanketed in snow much of the time during the winter.

Jan. 7, 2018 – price is very high, temperatures very cold, fossil fuels are 65% of generation. System demand is 20,254 MW



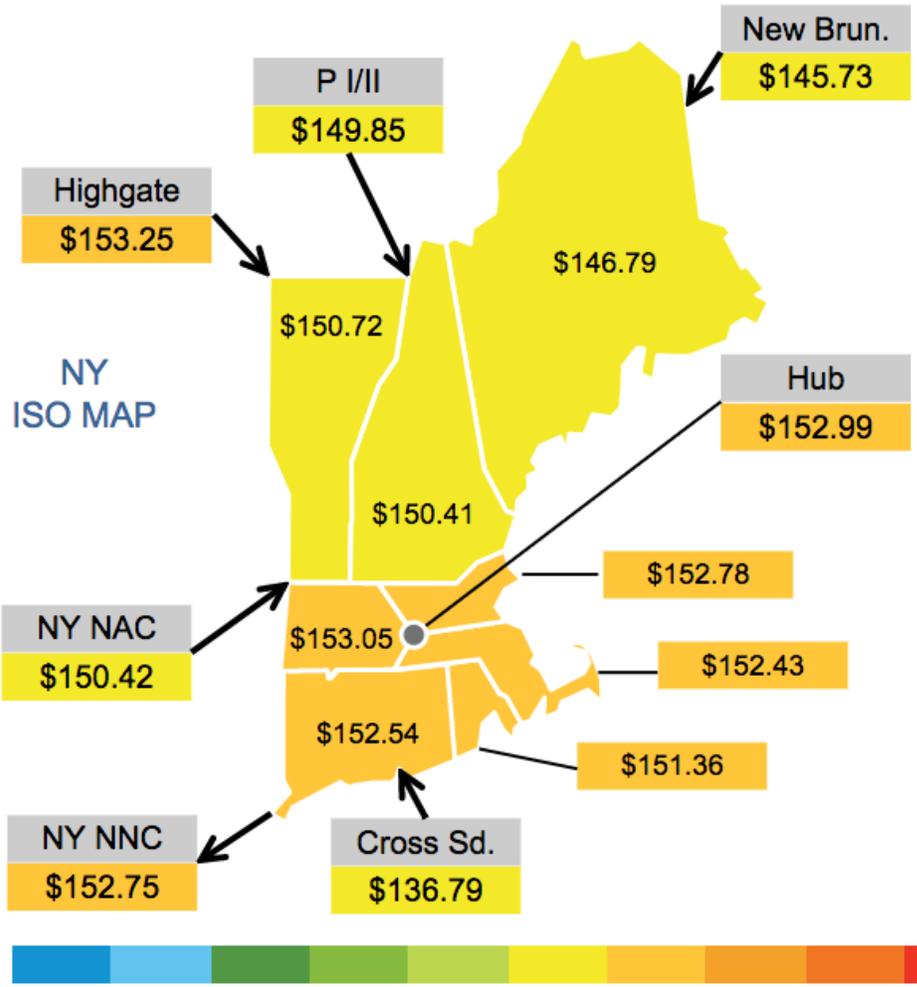


Jan. 17, 2018 – price is high, temperature is moderate, fossil fuels are 56% of generation, system demand is 18,252 MW

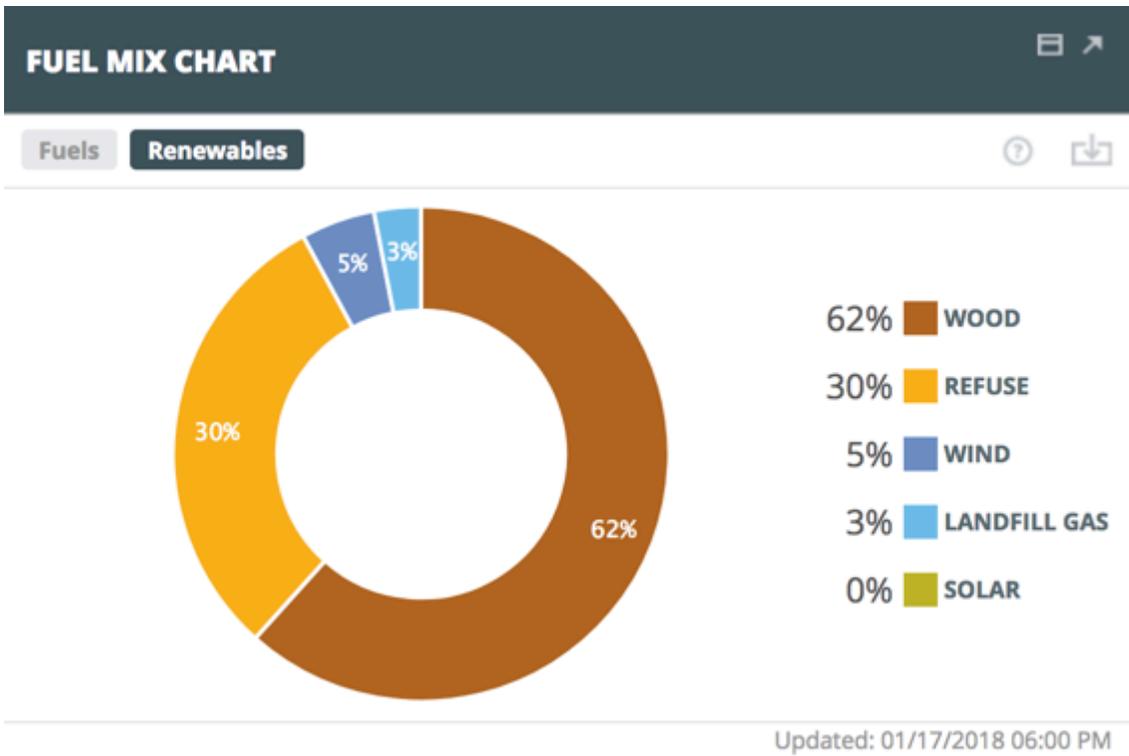
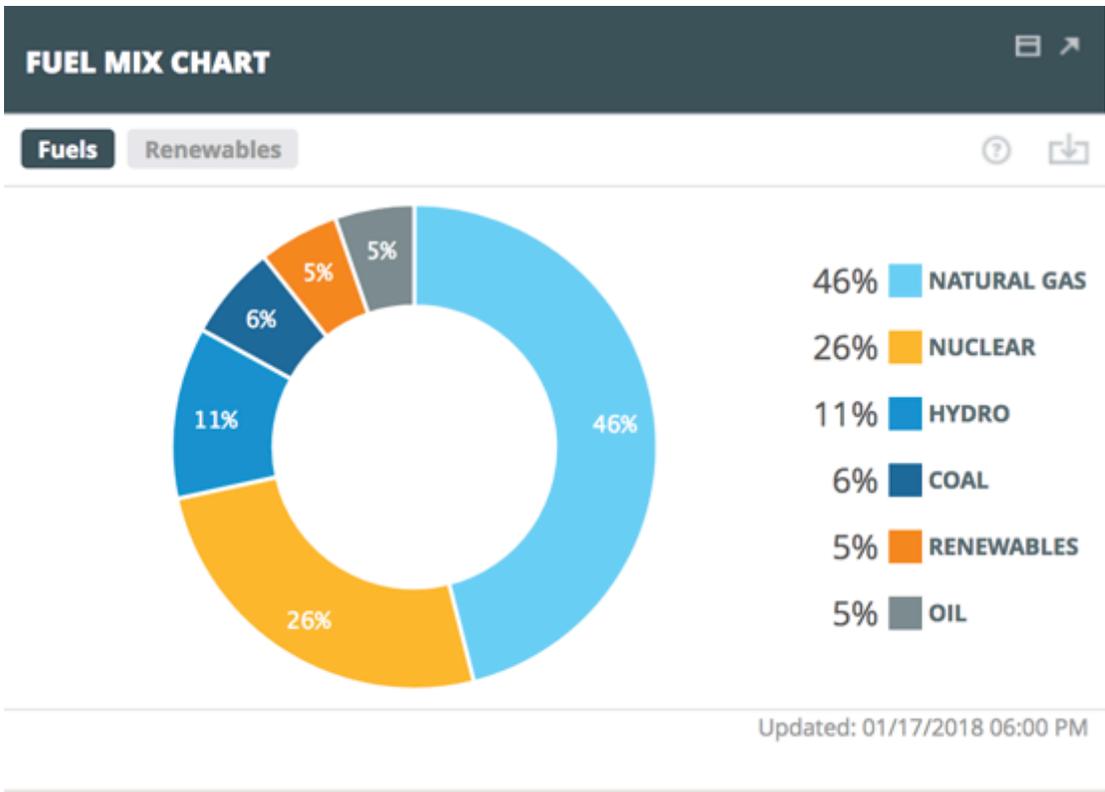
# LMP MAP: REAL-TIME

**Day-Ahead**   **Real-Time**

**NE Energy: \$151.76**   **System Demand: 18252 MW**



Sampling Period: 01/17/2018 06:10 PM



Both examples show that after dark, and even when there is wind in the mix, the majority of the grid generation fuel mix is fossil fuels. During the very cold spell, the region used about 30% oil, which is rare but necessary due to pipeline constraints that limit the amount of natural gas available to the region. In summer months, it is typical to see about 60% natural gas in the regional fuel mix.

Vermonters who net meter solar feel they are making a contribution to renewable energy. However, after dark, solar makes zero contribution. In winter months, sometimes the wind blows, sometimes it does not. The regional grid must have sufficient capacity to meet system demand regardless of the policy desires of individual states. Like it or not, air source heat pumps are mostly fueled by fossil fuels during winter nights. Will this reduce Vermonters' emissions? Perhaps, but it appears to be a very complex calculation to determine the net costs and benefits given the current technologies.

ISO-NE recently released this Fuel Security Report which says, "Fuel-security risk—the possibility that power plants won't have or be able to get the fuel they need to run, particularly in winter—is the foremost challenge to a reliable power grid in New England." The identified solutions involve importation of more natural gas and electricity from outside the region. [https://www.iso-ne.com/static-assets/documents/2018/01/20180117\\_operational\\_fuel-security\\_analysis.pdf](https://www.iso-ne.com/static-assets/documents/2018/01/20180117_operational_fuel-security_analysis.pdf)

If I have given you a headache, good. I have spent a lot of time thinking about how renewable energy systems work, and how to create incentives to change behavior to reduce consumption of fossil fuels. Having that direct connection, as I do with an off-grid system, has resulted in my household using much less energy than most average Vermont households. I clean the snow off my solar panels, I wait until the solar hot water is heated before showering to avoid using propane.

Net-metering solar does not have the same effect. In practice, people choose to maximize their solar production in summer months to build up credits, and then do not clean the snow off their solar panels in winter because they have excess credits and don't see the need for the power.

I appreciate the opportunity to share these thoughts with you and I wish you luck as you grapple with whether or not it is in Vermonters' best interests at this time to institute carbon pricing. We all agree that it is the planet's best interests to reduce fossil fuel consumption as rapidly as possible. The question is whether carbon pricing for Vermonters is an effective means of achieving the goal. I would be glad to answer questions.

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